



## 12V Up-Grade with RMK Electronic Ignition Conversion. DT250 Twin Shock RMK kits

Converting the 1974-79, 250-400cc Yamaha single cylinder 2-strokes to 12 volts is relatively straightforward using our equipment. We have designed a new lighting coil that is controlled with a modern regulator rectifier, that replaces all the old 6 volt versions Yamaha fitted originally.

Where ever possible we make the transition 'plug and play' with no need to cut an original loom, the most popular machines have 'plug in' 12 volt conversion looms. Sometimes however you may come across something that is not as expected. The most common issue found is where standard connectors have been replaced with the wrong type or the machine has been fitted with the wrong parts. We include an additional terminal kit so you have some spare terminals on hand if you find such issues. The rectifier terminals are commonly found to be replaced with the wrong type. Please note that we do not offer technical help for non standard or home made wiring looms.

Before you begin please read the warnings and cautions as we **DO NOT** replace items free of charge that have been damaged by being connected incorrectly. Kits are all fully checked!

### Warnings and Cautions

***To avoid injury, damaging electrical parts and electrical fires ensure the battery is disconnected and removed from the machine while working on the electrical system.***

***Serious injury and/or damage to your motorcycle can result if you apply 12 volts to a 6 volt battery. Batteries can explode or leak acid if the wrong voltage is applied to them. Battery acid is highly corrosive and toxic. We recommend only AGM or sealed lead/acid batteries, to reduce the possibility of injury and/or damage to equipment.***

***These kits are intended to convert the power source of the lighting system from 6 to 12 volts only, it is the installer who must assume all responsibility and liability in ensuring that the lighting system, lamps, bulbs reflectors and associated controls and equipment comply with local vehicle lighting laws and safety regulations.***

***Connecting the regulator/rectifier incorrectly to the battery will damage it beyond use. Ensure you read and follow this guide before making connections to the battery.***

***As per the original Yamaha design, the ignition and charging system are two totally separate systems that must never be connected to each other. The charging system does not power or effect the ignition. Applying DC power from the battery to the electronic ignition will damage the ignition unit.***

***A battery of the specified type or specified battery eliminator must always be connected to the DC terminals of the combined regulator rectifier, it will be damaged without a battery or battery eliminator connected.***

***The use of battery eliminators will give poor lighting or not allow the lights to work at all when the engine is at idle. All lights will work normally above idle but only when the engine is running.***

***Ensure all 6 volt parts are replaced with 12 volt parts before applying 12 volts to the system.***

#### **Your warranty is voided by the use of any of the following:**

- LED bulbs (LEDS are OK for the indicators only)
- HID 'projector' bulbs
- Lithium-ion batteries not specified by Rex's Technical team,
- Battery eliminators other than our BE1 or BE2.
- Any other regulator other than our p/n RR12V-1
- Any modification to the kit

***Our 12 volt conversion equipment is designed for filament bulbs and lead acid technology (AGM and sealed) batteries. The modification, improper fitting or adjustment or use of non specified equipment will invalidate the warranty on the entire kit. There are no standards for automotive LED lamp manufacture so we are unable to say which one will work without problem, therefore we do not recommend the use of LEDs.***

## **“How to” Guide**

The DT250 models do vary as some appear to have been fitted with a voltage regulator and some do not, therefore we supply two conversion looms to cover both eventualities. The short “A” loom is used where a voltage regulator was fitted, the much longer “B” loom is used on bikes that had no voltage regulator fitted.

Start by removing the 6 volt battery, bulbs, horn & indicator relay. Replace these items with 12 volts versions. The shop manual will help you if you need it.

Do not connect the 12 volt battery at this stage.

The new stator wire plugs in to the original wiring loom as before. Do not be alarmed if there is a different number of wires in the new stator plug or if they are slightly different colours.

### **Bikes that had a volt regulator shown in the parts book**

The original rectifier AND regulator are removed and discarded.

Use conversion loom “A”. Mount the 12 volt regulator under the tank where the old 6 volt regulator unit went.

Plug in the new yellow wire to where the old regulator connected. This is usually yellow or yellow/white. Note the spur at the stator plug. is not used in this case. Leave it disconnected.

The black earth wire should go to where the ignition module is earthed (under the HT coil mount or near to the HT coil where the wiring loom is earthed).

Plug in the white & red wires to where the rectifier was connected. NOTE: Very often these are found with the wrong connectors, ensure you match the wire colours. If you are still unsure, test to see which of the wires has continuity to the red wire at the battery (battery removed from machine).

### **Bikes that did not have a voltage regulator fitted:**

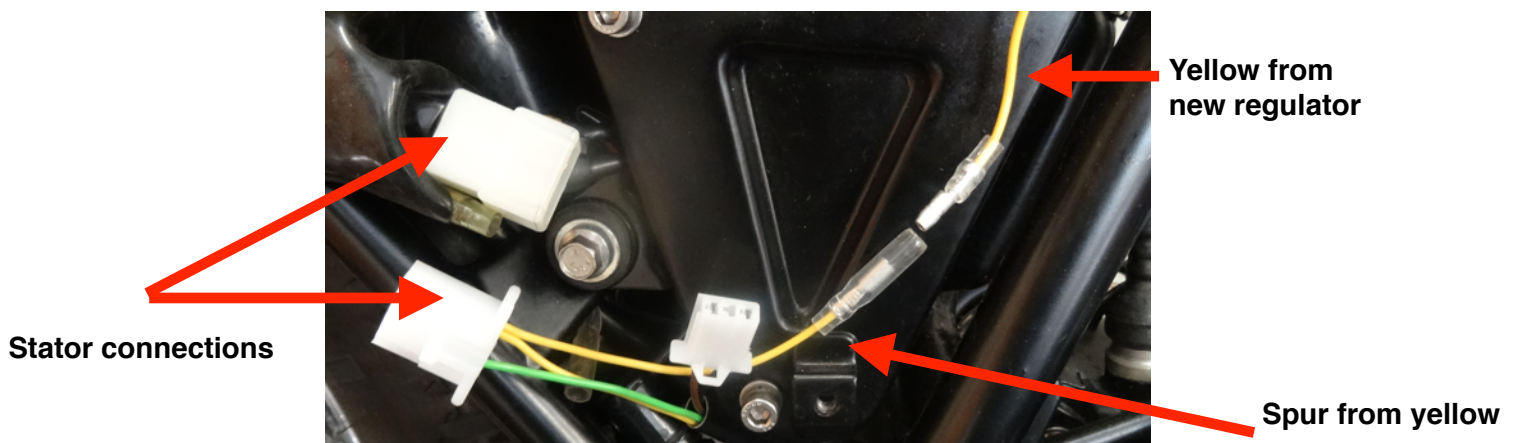
The original rectifier is removed and discarded.

In this case use the “B” loom. Mount the new 12 volt regulator where the old rectifier was mounted.

The black earth wire should go to where the ignition module is earthed (under the HT coil mount or near to the HT coil where the wiring loom is earthed).

The white and red wires connect to the old rectifier wires.

The long yellow wire connects to the spur in the yellow wire at the stator connection



### **Final steps**

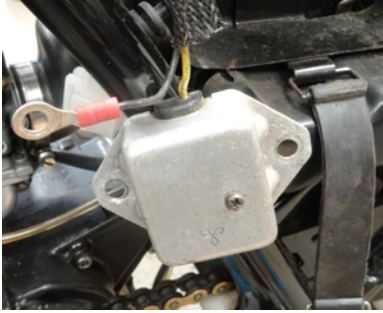
Fit a battery or eliminator

Check your connections.

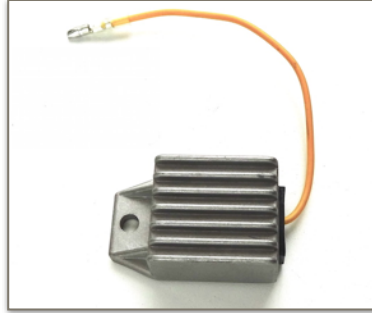
Start the engine if it is safe to do so and check the lights all work.

Measure the battery voltage with the engine at 2,500RPM. It should be 13.8 - 14.8 lights off. Lights on 12.9 to 13.9.

## Identifying the rectifier & regulator



AC regulator (Not fitted on some models)- yellow wire, often with a ring terminal to earth the case. Twin shock models its mounted near the HT coil, other models may have it on the battery carrier.



After market 6 volt AC regulator - yellow wire, case is earthed same as the original equipment.



Rectifier: 2 wires, normally red and white. Mounted close to the HT coil.

Recommended Batteries	DT12V-Batt. Fits in place of 6N4B-2B & 6N6-4. If a 6N6-6 was fitted use a Motobatt MB3U
Battery eliminator option	BE1
Recommended headlamp wattage	35 or 45 watts - standard filament type bulb
Replacement regulator	Rex's P/N: RR12V-1
Lighting coil	LC-3 (80 Watts)
Fuse	10-15 Amps
<b>Trouble shooting.</b>	
From many years experience we have found that new voltage regulators rarely cause any problems. Faults are normally traced to the motorcycle wiring. In all cases where the regulator is suspected we require you to return it for testing on our load cell. A fee for testing will be made where the unit is found to be working correctly.	
Over charging with a battery (Up to 15.8V)	1. Caused by poor earthing between engine and wiring loom. Common on restored bikes where the frame has been painted. Add an earthing wire between the engine and wiring loom negative. 2. LEDs in lighting circuit, replace with filament bulbs.
Over charging with a battery eliminator (16.0 volts)	Voltages up to 15.5 v with no load on the system are normal with a battery eliminator fitted. When the lights are on this will settle. Check earthing if it doesn't.
Blowing bulbs	Engine vibration. Loose bulb holders. Poor earthing connections in loom.

## Wiring diagram

